

REMARKS

Rejections Under 35 USC §103

Claims 25, 26, 28-33, 35-37, 39, 47, 46 and 51-53 have been rejected under 35 USC §103(a) as being unpatentable over Chou et al. (US Patent No. 5,691,568).

Claims 27 and 34 have been rejected under 35 USC §103(a) as being unpatentable over Chou et al. (US Patent No. 5,691,568) in view of Pedder (US Patent No. 5,717,245).

Claim 38 has been rejected under 35 USC §103(a) as being unpatentable over Chou et al. (US Patent No. 5,691,568) in view of Beaman et al. (US Patent No. 5,531,022).

Claims 49 and 50 have been rejected under 35 USC §103(a) as being unpatentable over Chou et al. (US Patent No. 5,691,568) in view of Rostoker et al. (US Patent No. 6,181,011).

In response to the rejections under 35 USC §103, the claims have been amended to recite features which further distinguish the claimed invention from the prior art.

Summary of the Invention

Claims 25-39 and 47-53 are directed to a "semiconductor component". The component includes a substrate 10 (Figure 2), and a conductive layer 14 (Figure 2) substantially covering a surface of the substrate 10. In addition, the component includes conductors 16 (Figure 2) on the surface, and a semiconductor die 20 (Figure 2E, 3A or 7) in electrical communication with the conductors 16.

Each conductor 16 is defined by a pair of grooves 15 (Figure 2) which comprise ablated portions of the

conductive layer 14. As shown in Figure 2C, the conductors 16 comprise portions of the conductive layer 14 separated by the grooves 15, and by remaining portions of the conductive layer 14 having edges defined by the grooves 15. As shown in Figure 2, each conductor 16 can include a bond pad 18 (pads or contacts in the claims) configured for flip chip mounting or wire bonding the die 20. Each conductor 16 can also include a contact pad 22 (contacts in the claims) configured for electrical connection to outside circuitry. In the case of wire bonding, an opening 40 (Figure 3A) can be laser machined in the conductive layer 14 for attaching the die 20 to the substrate. As shown in Figure 5A, the substrate 10BGA can also include conductive vias 58 in electrical communication with the conductors 16BGA, and contact balls 66 in electrical communication with the conductive vias 58.

35 USC §103 Rejections over Chou et al.

The amended claims include features which are not disclosed or suggested by Chou et al. alone, or Chou et al. in combination with the secondary references. Accordingly, the amended claims are submitted to be unobvious over Chou et al., unobvious over Chou et al. and Pedder, unobvious over Chou et al. and Beaman, and unobvious over Chou et al. and Rostoker.

One undisclosed feature is that the present component includes a conductive layer which substantially covers a surface of the substrate, and is "configured to provide a material for forming elements of the component by laser machining". Antecedent basis for this recitation is contained on page 8, lines 8-11 of the specification, and at other locations as well.

There is no corresponding conductive layer in Chou et al., which substantially covers a surface of the substrate, and is configured to provide a material for laser machining elements of the package. Rather, there are only the completed elements of the package, such as the lands 1011a-d in Figure 10A, the signal traces 512 in Figure 10A, and the die paddle 1180 in Figure 11A. In addition, there is no suggestion of laser machining these elements in Chou et al., such that there would be no incentive to provide such a conductive layer in the presently claimed component. With regard to the laser machining recitation, Applicant is aware of the cases which hold that the method by which a feature is made is not a patentable distinction. However, the above laser machining recitation describes the structure and function of the conductive layer, rather than it's method of making.

Another undisclosed feature recited in the amended claims is that the conductors are stated to be "configured for signal transmission", and that the remaining portions of the conductive layer separating the conductors are stated to be "non signal transmitting". Antecedent basis for the "signal transmission" recitation is contained on page 9, line 19 of the specification. There is no verbatim antecedent basis for "non signal transmitting", but this feature is submitted to be understood from the description on the "remainder of the conductive layer" at page 8, lines 13-21 of the specification.

In the embodiment illustrated in Figures 10A-10B of Chou et al., the lands 1011a-d and traces 512 are all signal transmitting elements. Also in the Figures 10A-10B embodiment of Chou et al., there are no non signal transmitting remaining portions of a conductive layer,

which separate the signal transmitting lands 1011a-d and traces 512. In the Figure 11A, embodiment of Chou et al., the die paddle 1180 is stated to be "grounded" and "electrically and thermally conductive" (column 17, lines 31-32). In addition, the die paddle 1180 is shown in Figure 11B of Chou et al. as being wire bonded to the die 502, such that it appears to transmit at least ground signals.

In addition, the die paddle 1180 in Chou et al. is in the middle of the pattern of traces 512 (Figure 10A), and does not separate adjacent traces 512, as with the presently claimed second portions (or remaining portions) of the conductive layer, which separate adjacent conductors. Further, in the present component the grooves which define the conductors, also define the shape of the second portions (or remaining portions) of the conductive layer.


In this regard, each of the amended independent claims includes recitations which distinguish the structure of the conductors, and remaining portions of the conductive layer, from the die paddle 1180 of Chou et al. For example, independent claim 25 recites "a plurality of grooves in the conductive layer defining a size, a spacing and a shape of the conductors and electrically isolating the conductors from the second portions of the conductive layer." Independent claim 31 recites "each conductor electrically isolated from the remaining portions of the conductive layer by a groove on either side". Independent claims 35, 47 and 52 include similar recitations.

Conclusion

In view of the amendments and arguments, favorable consideration and allowance of claims 25-39 and 47-53 is requested. Should any issues remain, the Examiner is asked to contact the undersigned by telephone.

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Respectfully submitted:

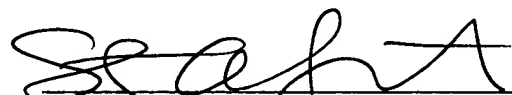

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